

ABOUT THE DISEASE

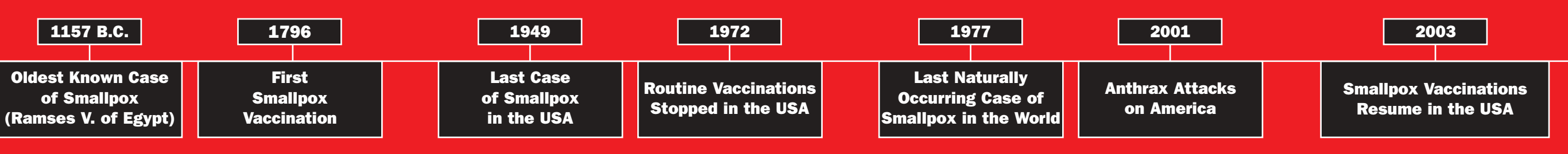
Smallpox is a contagious and sometimes deadly viral disease that causes a rash to cover the entire body. Other symptoms include fever, lack of energy, headache, and backache. There is no cure for smallpox; however, it can be prevented through vaccination. The term smallpox comes from the Latin word for "spotted" and refers to the raised bumps that typically appear first on the face, hands and feet, and then spreads over the entire body of an infected person.

History of Smallpox

Smallpox outbreaks have occurred for thousands of years. Smallpox disease is caused by the variola virus that is found only in humans. The last case of smallpox in the United States was in 1949. Routine vaccinations against smallpox for civilians were stopped in the USA in 1972. The last case in the world was in Somalia in 1977.

In 1980, the World Health Organization recommended that all countries destroy their supplies of the virus or transfer them to one of two World Health Organization reference labs in the United States and Russia. It was reported that all countries were in compliance of this request. However, recent terrorist attacks in the United States and throughout the world have increased concern that smallpox might be used as a weapon of mass destruction. For this reason, the U.S. government is taking precautions to prepare for a possible smallpox outbreak.

SMALLPOX & SMALLPOX VACCINE HISTORY



The Spread of Smallpox

There are two ways smallpox can spread from person-to-person:

- Direct skin contact with infected bodily fluids, bedding or clothing used by someone with the disease;
- Spread through the air, from person-to-person, especially over short distances (7 feet).

Only humans carry the variola virus naturally. Insects or animals do not spread smallpox. **There is no medication to treat smallpox.** Prevention is through vaccination, which lasts for several years. People who received the vaccine many years ago are less likely to die if exposed to the virus than persons who were never vaccinated. If the vaccine is given within four days after exposure to smallpox, it can make the disease milder or even prevent it. Patients with smallpox are kept away (isolated) from others to prevent the spread of the virus. People who have had close contact with someone with smallpox should be vaccinated immediately.

Symptoms

The incubation period—time between exposure to the variola virus and the start of symptoms—is 7 to 17 days. Symptoms begin with high fever, fatigue, headaches and backaches, followed 1-4 days later by a rash, which starts mostly on the face, arms, and legs. A person is very contagious when the rash appears. Lesions in the mouth and throat release large amounts of the virus that can be spread

through the air. The lesions are round, tense and deeply embedded in the skin. They fill with pus and begin to crust early in the second week of the rash. Scabs eventually develop and fall off after three to four weeks. The infected person is contagious until the last scab falls off.

About the Vaccine

The smallpox vaccine helps the body develop protection against smallpox. The vaccine is made from a virus called *vaccinia* which is a "pox" type virus related to the *variola* virus that causes smallpox. The smallpox vaccine contains the "live" *vaccinia* virus—not a dead virus like many other vaccines. Therefore, the vaccination site on your body must be cared for properly to prevent the virus from spreading. The vaccine contains only the *vaccinia* virus and not the variola virus that causes the smallpox disease. **The vaccine cannot give you smallpox.**

Currently, the United States has a large stockpile of smallpox vaccine, which will enable everyone to get vaccinated in the event of an emergency.

Five (5) ways the smallpox vaccine differs from all other vaccines:

1. Smallpox vaccine uses one virus (“*vaccinia* virus”) to protect against a second virus (“*variola* virus”) that causes the disease smallpox. Smallpox vaccine NEVER causes smallpox.
2. *Vaccinia* is a live virus that causes a skin infection at the vaccine site for 2-3 weeks. *Vaccinia* virus can be spread by physical contact to other people

("contacts") or to other parts of one's body after getting the vaccine. Thus, always WASH YOUR HANDS after touching the vaccine site or changing the gauze bandage that covers the site.

3. Unless exposed to smallpox itself, the vaccine should not be given to anyone with eczema or atopic dermatitis, even if these skin diseases are no longer active. If someone who has EVER had eczema or atopic dermatitis gets vaccinated they could develop a life-threatening reaction called "eczema vaccinatum".
4. This vaccine is not as safe as other vaccines. In the 1960's it was found that for every one million persons vaccinated for the first time, about 15-52 persons developed life-threatening reactions and 1-2 of these persons died. Without a threat of a smallpox bioterror attack, we would not reintroduce this vaccine for a disease that was eradicated over twenty-five years ago.
5. The vaccine is given with a 2-pronged ("bifurcated") needle, and requires multiple shallow insertions (maximum of 15) of the needle just under the skin. This means that a special needle and technique should be expected when you go to get your vaccination.

Length of Protection

Smallpox vaccination provides full protection for at least three years. Historically, the vaccine has been effective in preventing smallpox infection in 95% of those vaccinated.

RECEIVING THE VACCINE

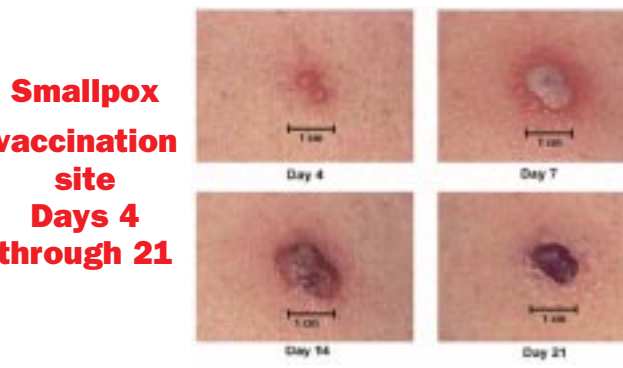
This vaccine is not given with a hypodermic needle. It is not a shot as most people have experienced. The vaccine is given using a bifurcated (two-pronged) needle that is dipped into the vaccine solution.

When removed, the needle retains a small drop of the vaccine. The needle punctures the skin on the upper arm multiple times (maximum of 15) without stopping (see photo). The punctures are not deep, but may cause a sore spot and one or two droplets of blood to form.

If vaccination is successful a red and often itchy bump develops at the vaccine site in three or four days. At the end of the first week the bump becomes a large blister, filled with pus. This is the first sign of a successful vaccination, or "take" (see Day 7 photo below).

During the second week, the blister begins to dry up and a scab forms. The scab falls off in the third week, leaving a small scar. People vaccinated for the first time have a stronger reaction than those being revaccinated.

The following pictures show the progression of the site.



Smallpox vaccination site Days 4 through 21

POST-VACCINATION CARE

After the vaccine is given, it is very important to follow the post-vaccination care instructions. Because the virus is live, it can spread to other parts of the body, or even to other people.

Benefit of Vaccine Given After Exposure

Vaccination within 4 days of exposure will prevent or significantly lessen the severity of smallpox symptoms in the majority of people. Vaccination 5 to 7 days after exposure may still provide protection from the disease or may modify the severity of the disease.

Smallpox Vaccine Availability

Routine smallpox vaccination of the American public stopped in 1972 after the disease was eradicated in the United States. The U.S. government believes at least 5 nations have the smallpox virus, and that one or more could use it as a weapon of mass destruction. Health departments and the CDC have taken measures to prepare for a possible smallpox attack on the U.S.

Right now, the U.S. government has enough smallpox vaccine to vaccinate the entire population in the United States in the event of a smallpox outbreak.

People Who Should NOT Receive the Smallpox Vaccine (Unless they are EXPOSED to the Smallpox Virus)

Some people are at greater risk for serious side effects from the smallpox vaccine. Individuals, or their close contacts, who have any of the following conditions should NOT get the smallpox vaccine unless they have been exposed to the smallpox virus:

- Eczema or atopic dermatitis. (This is true even if the condition is not currently active, is mild or was experienced as a child.)

- Skin conditions such as burns, chickenpox, shingles, impetigo, herpes, severe acne, or psoriasis. (People with any of these conditions should not get the vaccine until they have completely healed.)

- Weakened immune system. (Cancer treatment, organ transplantation, HIV/AIDS, medications to treat autoimmune disorders, any other illnesses which weaken the immune system.)

- Pregnancy or plans to become pregnant within one month of vaccination.

In addition, individuals should not get the smallpox vaccine if they:

- Are allergic to the vaccine or any of its ingredients.

- Are younger than 12 months of age. However, the Advisory Committee on Immunization Practices (ACIP) advises against non-emergency use of smallpox vaccine in children younger than 18 years of age.

- Have a moderate or severe short-term illness. (These people should wait until they are completely recovered to get the vaccine.)

- Are currently breastfeeding.

A person who has any of the above conditions, or lives with or who has close contact with someone who has these conditions, is advised **NOT** to get the smallpox vaccine.

Again, people who have been directly exposed to the smallpox virus should get the vaccine, regardless of their health status.

It is very important that you know your status before taking the vaccination. The DC Department of Health offers voluntary HIV and pregnancy testing.

Soon after receiving the vaccination, you should not donate blood.

CARING FOR THE VACCINATED SITE

After vaccination, the site is very contagious and can be spread to other parts of the body or to other individuals through contact. To avoid this, the vaccination site must be cared for carefully until the scab that forms after vaccination falls off on its own (in 2 to 3 weeks).

WHAT YOU SHOULD DO:

- **Cover the vaccination site loosely with a gauze bandage, using medical tape to keep it in place.**

Keep it covered until the scab has separated on its own. This bandage will provide a barrier to protect against spread of the vaccinia virus. (Health care workers involved in direct patient care should cover the gauze with a semi-permeable dressing as an additional barrier.)

- **You can wear a shirt that covers the vaccination site as an extra precaution to prevent spread of the vaccinia virus.** Wearing such clothing while sleeping might also prevent scratching the site at night. This is particularly important in situations of close personal contact.

- **Change the bandage every 1–2 days.** This will prevent skin at the vaccination site from softening and wearing away.

- **Wash hands with soap and warm water after direct contact with the bandage or after direct contact with the vaccination site.** This removes any virus from your hands and prevents contact spread. Wash hands immediately upon awakening in the morning.

- **Keep the vaccination site dry.** Cover the vaccination site with a water-resistant pad, such as a waterproof band-aid when you bathe. Remember

to change back to the loose gauze bandage after bathing.

- **Put the contaminated bandages in a sealed plastic bag and throw them away.**

- **Wash clothing or any other material that comes in contact with the vaccination site.** Use hot water with detergent and/or bleach.

- When the scab comes off, **throw it away in a sealed plastic bag** (remember to wash your hands afterwards).

DO NOT:

- **Don't use a bandage that blocks all air from the vaccination site.** This may cause the skin at the vaccination site to soften and wear away. Use loose gauze secured with medical tape to cover the site.

- **Don't put salves or ointments on the vaccination site.**

- **Don't scratch or pick at the vaccine site even if it begins to itch.**

REACTIONS TO THE SMALLPOX VACCINATION

Most people experience normal, typically mild reactions to the vaccine, which indicate that it is beginning to work. Some people may experience reactions that may require medical attention.

Normal, Typically Mild Reactions

These reactions usually go away without treatment:

- The arm receiving the vaccination may be sore and red where the vaccine was given.
- The glands in the armpits may become large and sore.
- The vaccinated person may run a low fever.



SMALLPOX & SMALLPOX VACCINE COMMUNITY GUIDE



- One out of 3 people may feel ill enough to miss work, school, or recreational activity or have trouble sleeping.

Serious Reactions

In the past, about 1,000 people for every 1 million (0.1%) people vaccinated for the first time experienced side effects. **Some reactions may require medical attention:**

- A vaccinia rash or outbreak of sores only in one area. This is an accidental spreading of the vaccinia virus caused by touching the vaccination site and then touching another part of the body or another person. It usually occurs on the genitals or face, including the eyes, where it can damage sight or lead to blindness. Washing hands with soap and water after touching the vaccine site will help prevent this.
- A widespread vaccinia rash. The virus spreads from the vaccination site through the blood. Sores break out on parts of the body away from the vaccination site.
- A toxic or allergic rash in response to the vaccine.

Life-Threatening Reactions

Rarely, people have had very severe reactions to the vaccine. In the past, between 14 and 52 people per 1 million (0.02%) people vaccinated for the first time experienced potentially life-threatening reactions.

These reactions require immediate medical attention:

- Serious skin rashes in persons with a history of eczema or atopic dermatitis (*Eczema Vaccinatum*).
- Severe damage to a large area of skin and tissue deep below the skin (*Progressive vaccinia or vaccinia necrosum*).

- Swelling of the brain (*Postvaccinial encephalitis*).

People with certain medical conditions—including people with weakened immune systems or certain skin conditions—are more likely to have these reactions.

Based on past experience, it is estimated that between 1 and 2 people out of every 1 million people (0.0002%) vaccinated may die as a result of life-threatening reactions to the vaccine.

RECOVERY

The majority of patients with smallpox recover, but death occurs in up to thirty percent of persons never vaccinated. Most of those deaths occur during the first or second week of illness. Sixty-five percent to eighty percent of survivors are marked with scars.

ENVIRONMENTAL CLEANUP

Special precautions need to be taken to ensure that all bedding and clothing of patients are cleaned appropriately with bleach and hot water. Contaminated surfaces should be cleaned with disinfectants such as bleach and quaternary ammonia compounds.

SMALLPOX TIMELINE

- **Incubation Period** (Duration: 7 to 17 days)
Not contagious

Exposure to the virus is followed by an incubation period during which people do not have any symptoms and may feel fine. This incubation period averages about 12 to 14 days but can range from 7 to 17 days. During this time, people are not contagious.

- **Initial Symptoms** (Prodrome) (Duration: 2 to 4 days)

The **first symptoms** of smallpox include fever, malaise, head and body aches, and sometimes vomiting. The fever is usually high, in the range of 101 to 104 degrees Fahrenheit. At this time, people are often too sick to carry on their normal activities. This is called the prodrome phase and may last for 2 to 4 days.

Rash Distribution:



- **Early Rash** (Duration: about 4 days)
Most Contagious

A **rash emerges** first as small red spots on the tongue and in the mouth.

These spots develop into sores that break open and spread large amounts of the virus into the mouth and throat. At this time, the person becomes **contagious**.

Around the time the sores in the mouth break down, a rash appears on the skin, starting on the face and spreading to the arms and legs and then to the hands and feet. Usually the rash spreads to all parts of the body within 24 hours. As the rash appears, the fever usually falls and the person may start to feel better.

By the third day of the rash, the rash becomes raised bumps.

By the fourth day, the bumps fill with a thick, opaque fluid and often have a depression in the center that

looks like a bellybutton. (This is a major distinguishing characteristic of smallpox.)

Fever often will rise again at this time and remain high until scabs form over the bumps.

- **Pustular Rash** (Duration: about 5 days)
Contagious

The bumps become **pustules**—sharply raised, usually round and firm to the touch as if there’s a small round object under the skin. People often say the bumps feel like BB pellets embedded in the skin.

- **Pustules and Scabs** (Duration: about 5 days)
Contagious

The pustules begin to form a crust and then **scab**.

By the end of the second week after the rash appears, most of the sores have scabbed over.

- **Resolving Scabs** (Duration: about 6 days)
Contagious

The scabs begin to fall off, leaving marks on the skin that eventually become pitted **scars**. Most scabs will have fallen off three weeks after the rash appears.

The person is contagious to others until all of the scabs have fallen off.

- **Scabs resolved** Not contagious
Scabs have fallen off. Person is no longer contagious.

IMPORTANT TELEPHONE NUMBERS

In any medical emergency it is important to seek professional treatment. If you suspect you have been exposed to smallpox, seek medical assistance immediately. Depending on the type of emergency, experts advise that you seek guidance before taking any action, thereby limiting possible spread of a virus to others. First responders on the scene of any disaster or attack are likely to be local police officers, firefighters and paramedics.

Listed is the contact information for the major hospitals, and government offices in the Washington area.

The District:

Children’s National Medical Center
111 Michigan Ave. NW
Washington, D.C. 20010
202-884-3000

George Washington University Medical Center
901 23rd St. NW
Washington, D.C. 20037
202-715-4000

Georgetown University Medical Center
3800 Reservoir Rd. NW
Washington, D.C. 20007
202-687-0100

Greater Southeast Community Hospital
1310 Southern Ave. SE
Washington, D.C. 20032
202-574-6000

Howard University Hospital
2041 Georgia Ave. NW
Washington, D.C. 20060
202-865-6100

Providence Hospital
1150 Varnum Street, NE
Washington, D.C. 20017
202-269-7000

Sibley Memorial Hospital
5225 Loughboro Road, NW
Washington, DC 20006
202-537-4000

Veterans Administration Medical Center
50 Irving Street, NW
Washington, DC 20422
202-745-8000

Walter Reed Army Medical Center
6825 16th Street, NW
Washington, D.C. 20012
202-782-3501

Washington Hospital Center
110 Irving St. NW
Washington, D.C., 20010
Main number: 202-877-7000
ER: 202-877-7632 or 202-877-7234

D.C. Police
www.mpdc.org
202-727-4383

D.C. Fire and Emergency Medical Services
www.fems.washingtondc.gov
202-673-3331

D.C. Department of Health
www.dchealth.dc.gov
202-442-5999

D.C. Emergency Health and Medical Services Administration (EHMSA)
www.bioterrorism.doh.dc.gov
202-442-9196

D.C. Emergency Agency
www.dcema.dc.gov/main.shtm
202-727-6161

National Agencies:

CDC Public Response Hotline:
English 888-246-2675
www.cdc.gov

National Institutes of Health
301-496-4000
www.nih.gov

Department of Health and Human Services
Toll Free: 1-877-696-6775
www.hhs.gov

This brochure is intended only for use as public information. Currently, there is no known case of smallpox disease. There has not been a report of smallpox disease since 1978. At the production time of this guide, only hospital workers, health workers and emergency first responders have been recommended to take the smallpox vaccination. A recommendation for vaccination of the general public has not been made. However, if a case of smallpox should occur, this recommendation will likely change. A recommendation for public vaccination is expected in 2004.

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